

REMARKS

Claims 1-17 are pending in this application. By this Amendment, the specification is amended for clarity, claims 1-14 are amended for clarity, and claims 15-17 are added. No new matter is added by this Amendment. Support for claims 15-17 is found in the original claims.

Prompt and favorable consideration on the merits is respectfully requested.

Respectfully submitted,



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Attachments:

Marked-Up Copy of the Originally Filed Specification
Clean Substitute Specification
Amended Abstract

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IGNITION METHOD FOR A SOLID FUEL APPARATUS AND APPARATUS FOR CARRYING OUT SAID METHOD

BACKGROUND

[0001] The invention relates to solid fuel apparatus, in particular to a horizontal or a vertical heating apparatus or a barbecue-type cooking apparatus, and most particularly to an ignition process or system for such kind a type of apparatus.

[0002] It is known that ignition (i.e., the initiation of combustion of fuel) of a solid fuel apparatus, in particular a heating apparatus or a barbecue-type cooking apparatus, ~~that is to say the combustion beginning of the fuel, apparatus~~ is responsible ~~of for~~ the major part majority of accidents ~~due to that occur with~~ such apparatus.

SUMMARY

[0003] ~~The invention aims to To overcome these and other problems whilst problems, while~~ procuring other advantages. ~~More precisely, it consist to advantages,~~ an ignition method for a solid fuel ~~apparatus, in apparatus~~ is provided. ~~In particular-particular,~~ a heating apparatus or a barbecue-type cooking apparatus is provided. ~~apparatus, wherein said~~ The method ~~comprises a step consisting in includes~~ blowing hot air on at least one part of ~~said-solid fuel-fuel,~~ which is arranged in a container of ~~said-the~~ apparatus, in order to ignite ~~the combustion of said-the~~ at least one ~~fuel part-part of solid fuel.~~

[0004] The combustion ignition by a hot stream of air may enable ignition without enables to avoid any using-use of a fire lighting apparatus, such as, for example-example, as matches-matches, lighters and the like. ~~or by inner or outer flame bringing, and especially enables to avoid any adjunction~~ The combustion by the hot stream of air also may enable ignition without use of various flammable products that include, more or less-less, toxic and dangerous liquid fuel type substances. The solid fuel can be, for example paper, small pieces of wood, ~~but also wood eoal-coal,~~ or any other solid fuel ~~of the market-currently known or later developed.~~

[0005] ~~According to an advantageous characteristic, In an exemplary embodiment,~~ the method ~~according the invention moreover consists in includes~~ blowing a hot-hot air on ~~said-the~~ fuel, after initiating combustion ~~starting of said-the~~ at least one part of ~~said-the~~ solid fuel, in order to increase the time of combustion extension of said-of the fuel-fuel, or to poke ~~combustion-the fuel~~ in ~~said-the~~ container.

[0006] ~~So, this characteristic enables the increasing of the combustion starting and extension stage in order~~ By blowing hot air on the fuel, the time of initiating of combustion and of maintaining combustion may be increased to quickly obtain an efficient level of the apparatus and/or to ~~poke the combustion according to the fuel to maintain or achieve a~~ desired temperature and ~~the desired~~ cooking speed.

[0007] ~~According to an advantageous characteristic, the~~ The method according to the invention ~~moreover consists in exemplary embodiments further includes~~ blowing a hot air on ~~said the solid fuel~~, before initiating combustion ~~starting of said the~~ at least one part of ~~said the solid fuel~~, in order to ~~clear~~ remove moisture from ~~said the solid fuel~~.

[0008] ~~The invention also relates to a~~ In an exemplary embodiment, solid fuel apparatus, in particular a heating apparatus or barbecue-type cooking apparatus, ~~for carrying out a method, comprising may include~~ a container for containing a solid fuel, ~~wherein fuel.~~ ~~said The apparatus comprising may also include~~ at least one means for generating a hot air stream on at least one part of ~~said the solid fuel~~.

[0009] ~~According to an advantageous characteristic, said~~ The container comprises ~~may have a furnace grid, grid and an ash pit disposed under said the furnace grid, grid.~~ ~~said The furnace grid and said the ash pit being may be disposed in the a bottom of said the container, container.~~ ~~said The means for generating a the hot air stream on the at least one part of said the solid fuel comprising may include a pipe and a hot air stream generator. —a The pipe to may conduct said the hot air stream to said the container, one container. A first end of which the pipe may leads lead to said the grid into said the container, or over to said the grid, grid. —a The hot air stream generator may be disposed out outside of said the container and may be connected to the other a second end of said the pipe.~~

[0010] ~~According to an advantageous characteristic, said~~ The pipe ~~to that may conduct said the hot air stream to said the container comprises may have a hot air providing means to said provide hot air to the ash pit, pit.~~ The first ~~one~~ end of ~~said the pipe leads may lead to said the grid into said the container, or over said the grid, grid, and the other second end is may be connected to a the hot air stream generator.~~

[0011] ~~Hot~~ Providing hot air providing means to the ash pit ~~may enable to diffuse diffusion of the hot air below the furnace grid and to may widely distribute it the hot air through the furnace grid into to the fuel situated into in the container and over the furnace grid.~~ Thus, the hot air diffusion points into the fuel can be distributed along a wider area.

[0012] ~~According to an advantageous characteristic, the~~ The apparatus according to the invention comprises ~~may further include~~ shutting means to ~~obturate-obstruct said the~~ feeding means with ~~of~~ hot air to ~~said the ash pit, pit.~~ The shutting means may be movable between ~~two~~ a plurality of positions, a first position where ~~said the feeding-shutting means is open-open,~~ providing hot air to the fuel, and ~~a second position where said the feeding-shutting means is closed-closed,~~ preventing or discouraging hot air being fed to the fuel, and a third position where the shutting means is partially open.

[0013] This characteristic enables the user to choose a hot air distribution according to his needs.

[0014] ~~According to an advantageous characteristic, the~~ The apparatus according to the invention comprises ~~may further have a~~ regulation means for ~~said-regulating the~~ hot air stream headed through ~~said the~~ pipe.

[0015] This characteristic enables an user to modify the hot air stream exhausted ~~onto to~~ the fuel according to his needs.

[0016] ~~According to an advantageous characteristic, the~~ The apparatus according to the invention comprises ~~may further have a~~ means for diffusion of ~~said the~~ hot air stream in a horizontal plane and radially into ~~said the~~ container.

[0017] This characteristic enables ~~to distribute-distribution and to extend an~~ extended period of time of providing the hot air way ~~into to or into the fuel-fuel,~~ and thus enable-enables to obtain ~~a better efficiency of the hot air ignition system.~~

[0018] ~~According to an advantageous characteristic, the~~ The pipe comprises one ~~may further include a~~ first end connected to an air stream generator, in which the pipe has ~~several sleeves of different diameters-diameters, which comprise respectively having one or several entries, entries.~~ enabling by rapid-junction means the adaptation of one ~~One or several fans equipped with heating resistancee-resistance may be adapted, respectively, to the one or several entries of the pipe by a rapid-junction means.~~

[0019] This characteristic enables ~~to adapt by connection by~~ a simple sleeve, or by any other known ~~or later developed quick connecting system,systems,~~ one or several fans equipped with heating resistancee-resistance to the pipe. The one or several fans equipped with heating resistance may include, for example-example, fans available on the market, such as a "hair-dryer" or a "burner" among others, which are able to be removed once the ignition operation is ended, or staying-which may stay connected for further activating embers of the

solid fuel by getting some providing oxygen, in order to raise the furnace temperature.~~temperature, for example.~~

[0020] ~~According to an advantageous characteristic, the~~ The pipe is may further be connected to the adaptable onto said apparatus by a simple drilling-drilling, for example, at least on hole, at in the bottom of said the ash pit-pit. wherein said The pipe is may be quickly fitted by way of thread, lug, quarter turn milled ring-ring, or by any rapid-junction means.~~means at the at least one hole in the bottom of the ash pit.~~

[0021] This characteristic enables the pipe to be adapted onto an existing solid fuel apparatus, in order to provide such ~~present an~~ apparatus with an ignition ~~system according to the invention.~~system, as described above.

[0022] ~~According to an advantageous characteristic, the~~ The pipe merges may be inserted into said the ash pit until brushing the pipe brushes against said the furnace grid of said the apparatus.

[0023] ~~According to an advantageous characteristic, the~~ The pipe is may be fitted onto said the ash pit by the rapid-junction means, enabling a quick removing-removal of said the pipe in order to to, for example, enable emptying of said empty the ash pit.

[0024] ~~According to an advantageous characteristic, the~~ The pipe is may have drilled by oblique holes drilled along its the pipe's upper surround, in order to widely diffuse the most widely, by way of hot air stream. a A hot air stream division caused by by, for example, a truncated washer arranged inside said the pipe, pipe, may assure assuring the division of said the hot stream for one side towards said the ash pit and for the other side towards said the container in which the furnace of said the apparatus is set.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] Other characteristics will appear more clearly by reading the ~~two~~ following ~~examples of exemplary~~ embodiments of a barbecue-type cooking ~~apparatus-apparatus,~~ ~~according to the invention,~~ with reference to the appended drawings, examples given as illustration without any ~~limitation: limitation.~~

[0026] ~~Figure 1~~ Figure 1 shows in section view a cross-sectional view in a first embodiment of a barbecue-type cooking apparatus according to the invention;~~invention;~~

[0027] ~~Figure 2~~ Figure 2 shows in a partial section cross-sectional view of a second embodiment of a barbecue-type cooking apparatus according to the invention;~~invention; and, and~~

[0028] ~~Figure 3~~ Figure 3 shows an ~~enlarger enlarged detail detailed~~ depiction of the apparatus shown in ~~of~~ figure 1.

DETAILED DESCRIPTION OF EMBODIMENTS

[0029] ~~The apparatus represented on~~ With reference to figures 1 and 2 and 2, comprises:

~~—[0030]~~ a container 6 surrounded by a frame 7 ~~comprising~~ has a cooking grid 8-grid 8, of which the fixation level onto the ~~The cooking grid 8 may be adjustably fixed in the frame 7~~ frame 7, is advantageously adjustable in relation with ~~relative to a bottom of the container~~ bottom, container 6. ~~a~~ A furnace grid 9, may be disposed at the bottom of the container, container 6. ~~an~~ An ash pit 10 may be disposed under the furnace grid, grid 9. ~~a~~ A pipe 1-pipe 1, for leading a to head the hot air stream into the container, container 6, of which has ~~one~~ a first end that leads to the furnace grid-grid 9 into the container, container 6, or over it, the container 6. ~~a~~ A hot air stream generator 3, 4, 5 disposed ~~out outside~~ of the container 6-container 6, and connected to the other a second end of the pipe 1, able to provide is capable of providing heated air, preferably to a temperature around 500°C, for ~~example example~~, by way of ~~electrically resistors, electrical resistors~~. ~~legs~~ Legs 11 to may support the container 6.

[0030] The hot air stream, channeled into the pipe 1 with ~~having~~ a shape and section adapted to the ash pit 10, is advantageously regulated by the rotation of a throttle 2 which, ~~handed positioned, modifies~~ which is disposed to modify the flow of the hot air stream at will. The exhausted air is ~~for example is, for example~~, furnished by a hand held 4-fan 4 or electrical 5-fan, fan 5. ~~mono or multi~~ The hot stream generator has one or multiple gears, provided with one or several electrical resistors at its outing, and is preferably controlled by a switch, remote control or any other equivalent control apparatus, apparatus. This hot stream generator advantageously ~~enabling to quickly clear~~ enables quick moisture removal from the solid fuel before ~~initiation of combustion starting combustion~~, which may advantageously be automatic, automatic. and The hot stream generator may then to poke embers ~~combustion of the solid fuel~~ if needed, according to the temperature and ~~and/or~~ the desired cooking speed: speed, and/or other parameter.

[0031] The pipe 1 is advantageously provided with a set of sleeves 12 of different diameters, with one or several entries, enabling by a sleeve, or by any other known or later developed quick connecting system, ~~one system connection to one~~ or several fans equipped with heating resistance, for ~~example example~~, of the type available on the market, such as a "hair-dryer" or a "burner" among others, ~~able to others~~. The fans may be removed from the

hot stream generator after once the ignition operation began, begins, or let may remain
 connected for activating embers by getting some or introducing additional oxygen, in order to
 raise the furnace ~~temperature~~. temperature, for example.

[0032] The pipe 1, which may or may not be provided or not with a flow regulating
 throttle 2, is adaptable onto many or most of present currently known barbecues by a simple
simply drilling at the a bottom of the ash pit pit 10, and quickly fitting the flow regulating
throttle 2 wherein it is quickly fitted by way of thread, lug, quarter turn milled ring ring, or by
any rapid junction rapid-connecting means. The pipe 1 merges may be inserted, for example
example, into the ash pit 10 until brushing it brushes against the furnace grid 9, as shown on
 figures 1 and 2, in order to avoid ~~the ash dispersal by the exhaust stream and is stream.~~ The
pipe 1 may easily be removed to be emptied. The pipe 1 is advantageously drilled by oblique
 holes 14 along its upper surround, in order to diffuse, diffuse the air coming into the furnace.
For example, the air may be diffused by way of a hot air stream division division, such as, for
example, an air stream division caused by a truncated washer 13 disposed across the pipe 1,
pipe 1. the The most widely possible, the air coming into the furnace truncated washer may
be as wide as possible to fit inside the pipe 1.

[0033] According to the example shown on the exemplary embodiment of figure 3,
 the pipe 1 merges may be inserted directly into the ~~container,~~ container 6, over the furnace
 grid, grid 9, the ~~other second~~ pipe end being connected to the hot air stream generator 3, 4, 5
 thus feeding the ash pit with hot air. The pipe first end of the pipe 1 inserted merging into the
container 6 is container 6, may be advantageously realized by fitted with a mobile diffuser 15
 (as shown in Fig. 2) to obstruct or encourage moreover enabling to close or to open the
feeding of hot air feeding of into the ash pit 10, depending on the position chosen by ~~the a~~
 user, for example by a simple rotation of the diffuser 15. The diffuser 15 may by realized as
be a cap, turning turn fitted onto the end of the pipe 1, may have drilled ~~by~~ holes appropriated
 to diffuse hot air, hooding the end of the pipe 1, the pipe 1. The drilled holes of the diffuser
holes 15 being 15 may be disposed in order to advantageously enabling the diffusion of the
 hot air stream in a horizontal plane and radially into the ~~container 6~~ container 6 and moreover
more advantageously into the pit ash 10 ash pit 10. when said holes of the diffuser 15 are in
regard with the hole 14 drilled into the pipe 1, as represented on figure 3.

[0034] The ~~removable~~ diffuser 15 merging into may be removable and may have an
upper part 16. When inserted into the furnace furnace, is obturated on its the upper part 16
part 16, being flat or convex, ~~in order to may~~ diffuse the whole all or a part of the hot air

stream in a horizontal plane into the ~~container~~ container 6 and, depending ~~the on~~ user needs, into the upper part of the ~~pit-ash~~ ash pit 10.

[0035] The pipe 1 is advantageously fitted onto the ash pit 10 by any rapid-junction means ~~known, known or later developed, such as, for example~~ example, a ~~sleeve or a quick attach, sleeve,~~ enabling a quick ~~removing~~ removal, of the ~~pipe~~ pipe 1, in order to enable the emptying of the ash ~~pit~~ pit 10.

[0036] The invention enables ~~to ignite~~ ignition of a barbecue without matches or ~~light, a lighter,~~ in less than one ~~minute~~ minute, with an ~~exhausted air~~ hot air stream at a temperature of around 500°C, and the 500°C and to increase the spreading of combustion. ~~cooking~~ Cooking can begin three minutes after ignition. ~~There is no problem with the ignition of a moist~~ Moist fuel, fuel may be utilized because the moisture being may be cleared removed in ~~few~~ seconds by the ~~hot air exhausted,~~ exhausted hot air. The cooking time can be accelerated ~~increased~~ by feeding the ~~container~~ container 6 with hot air ~~while this one, as discussed above~~ or by a ~~classie way~~ by stopping the feeding of hot air feeding, air. ~~When If~~ the apparatus does not ~~comprise a pit ash,~~ include an ash pit, the hot air ~~exhaust can be situated~~ may be introduced directly into the container. ~~The~~ Alternatively, the hot air stream generator can ~~alternatively with the previous description~~ be provided ~~by~~ with a gas burner and be exhausted by a hand held fan.

[0037] The exemplary apparatus may ~~hot air ignition system is also be~~ applicable to inserts, wood or coal burning stoves, chimney or any other heating or cooking means using solid fuel wood, ~~coal~~ coal, or waste oil ~~based~~ based materials, or the like.

ABSTRACT

~~The invention relates to an~~ An ignition method for a solid fuel type apparatus, in particular a heating apparatus or barbecue-type cooking apparatus, ~~wherein said method comprises a step of~~ includes blowing hot air on at least one part of ~~said the~~ solid fuel which is arranged in a ~~container (6)~~ container of ~~said the~~ apparatus, in order to start the combustion of ~~said the~~ at least one fuel part. ~~The invention also relates to a~~ A solid fuel apparatus, in particular a heating apparatus or barbecue-type cooking apparatus, ~~for carrying out a method according to claim 1, comprising~~ has a ~~container (6)~~ container for containing a solid ~~fuel,~~ fuel. ~~wherein said The apparatus comprising at least~~ has means (3, 4, 5) for generating a hot air stream on at least one part of said solid fuel.

~~FIGURE 1~~